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POLLINATION OF
HIBBERTIA CONSPICUA (DILLENIACEAE)

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ABSTRACT

Hibbertia conspicua is buzz pollinated by Anthophorid bees of the genus *Amegilla*.

INTRODUCTION

Hibbertia conspicua (J. Drumm. ex Harv.) Gilg. is an unusual member of the genus *Hibbertia* occurring on the northern margins of the wheatbelt of Western Australia. The plant is an almost leafless shrub, bearing yellow flowers with a core of anthers clustered around the style. Because of its habit and floral morphology the species has been placed in the largely tropical genus *Pachynema*, although currently it has been returned to *Hibbertia* (see Erickson *et al.* 1973, for an illustration).

During the biological survey of the Goldfields I was able to observe the pollination of this species at a site 16km north of Bungalbin Hill (30° 17'40"S, 119° 44'50"E). Here the vegetation was *Banksia elderiana* tall shrubland on deep yellow sand. *Hibbertia conspicua* occurred in discrete clumps of 4-12 plants scattered through the shrubland.

OBSERVATIONS

In this region in early December *Hibbertia conspicua* was in full flower. Flowers were strictly diurnal, opening at 0600 hours and closing permanently by 1600 hours. The flowers possess no noticeable scent or nectar. Only a few flowers are open per plant per day (Table 1).

Days were warm to hot (30-36°C) during the observation period.

Flowers were visited by female *Amegilla* cf. *pulchra*, a medium sized bee of the family Anthophoridae. The bees hunched over the central cone of anthers, and by vibrating their indirect flight muscles extracted pollen from the anthers via the apical pores. This technique, producing a distinct audible buzz, is known as buzz pollination (Buchmann, 1983). Pollen is placed on the style from the bee's body (where it was deposited on previous visits).

Bees spend less than a second per flower and because of the low numbers of flowers per plant visit a number of separate plants to obtain a full pollen load. Visitation occurs between 0700 and 0900 hours, with rare visits to 1100 hours.

DISCUSSION

The family Dilleniaceae in Australia contains two shrubby genera, *Pachynema* and *Hibbertia*. *Pachynema* differs from *Hibbertia* in having flattened leafless cladodes (stems) which are green and photosynthetic (illustrated in Brock (1988)). Members have relatively fleshy red, pink or white flowers. Unlike members of *Pachynema*, *Hibbertia conspicua* has terete almost leafless glaucous stems with bright yellow flowers, and does not belong in that genus.

Hibbertia conspicua with its unusual habit and floral morphology is somewhat isolated within the genus. However, the floral morphology is directly related to its pollination syndrome, and should not be given major taxonomic status, unless the habitat is considered of special taxonomic significance.

Pollination studies are needed on members of the genus *Pachynema*.

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Table 1. Flowers open per plant per day

Date	No. Plants	Range (of open flowers/plant)	Mean no of open flowers/plants
4.12.81	27	0-26	4.1
5.12.81	27	0-17	2.6
6.12.81	27	0-20	8.2
7.12.81	27	0-15	1.7

FROM FIELD AND STUDY

Trapping of insects by *Eremaea beaufortioides* — While collecting in the Beekeeper Reserve at Eneabba on 22 September 1983, I observed a number of insects trapped in the viscid secretion below the flowers of *Eremaea beaufortioides*. Some of the specimens had been there for a short time and were struggling to escape. Others that had been there for a prolonged period, encased in the sticky secretion, were in an advanced stage of decomposition.

The following specimens were later identified:

Coleoptera:

Eleale alicordes (Cleridae)

Heteromastix sp. (Cantharidae)

Unidentified species of Chrysomelidae

Lepidoptera:

Copper moth, *Pollanisis cupreus* (Zygaenidae)

Specimens of flower heads and associated insects have been lodged in the collection of the Western Australian Museum.

Many kinds of resins and species of glandular plants capable of trapping insects are recorded from Western Australia. Among these are some well known insectivorous species (Erickson 1978: *Plants of Prey in Australia*).

Distribution and function of resins and glandular hairs in Western Australian plants are described by Dell (1977, *J. Proc. R. Soc. West. Aust.* 59: 119-123), and an article by Maywald (1983, *Ent. Soc. Queensland, New Bulletin*, 10: 141) records the trapping of insects on the stem of the introduced legume *Desmodium uncinatum*. In this plant small, hooked spines are responsible for the capture of the insects.

Gardner (1947, *West. Aust. Nat.* 1: 1-6) in his paper wrote: "*Eremaea beaufortioides* with blooms of a rich orange and flower buds covered with a thick, gummy substance . . .". His observations on the flower buds may indicate that the gummy substance protects the developing flower from predators. In my observations the substance was beneath the flower head and, as far as I can determine this is the only report of insects being trapped by a member of the family Myrtaceae.